

IN THE CLAIMS

Claims 1-25 (Canceled).

Claim ¹~~26~~ (Currently amended): A method for removing impurities out of an exhaust gas discharged from a chamber used for depositing metallic films on objects, comprising:

discharging the exhaust gas containing impurities generated from a process selected from the group consisting of: (i) a process for depositing TiN on an object by using TiCl_4 , ~~H_2 and NH_3~~ , (ii) a process for depositing WN on an object by using WF_6 and NH_3 , (iii) a process for depositing W on an object by using WF_6 and SiH_4 , (iv) a process for depositing WSi film on an object by using WF_6 and SiH_2Cl_2 and (v) a process for depositing Ta_2O_5 on an object by using pentoethoxy tantalum and O_2 ;

D1 injecting a reactant gas selected from the group consisting of an oxygen-containing gas, water and ammonia into the exhaust gas, wherein the reactant gas reacts with the impurities to form reaction by products which have a lower vapor pressure than the vapor pressure of the impurities, and

passing the reaction by product-containing gas through a condenser, wherein the reaction by-products are condensed out of the exhaust gas.

Claims 27-33 (Canceled).

Claim ²~~34~~ (Currently amended): A method for removing an impurity gas discharged from a process apparatus used for processing objects by using a process gas trap mechanism, comprising:

evacuating insides an interior of the process apparatus, thereby drawing the impurity gas through an exhaust pipe connecting the process apparatus and the a trap mechanism;

'mixing a reaction gas to react with the impurity gas ~~by an~~ within the exhaust pipe ~~connecting at a location between~~ the process apparatus ~~[[to]]~~ and the trap mechanism to convert the impurity gas to reaction by-products having a lower vapor pressure than that of the impurity gas ~~impurities~~; and

controlling a temperature of the trap mechanism to condense ~~and solidify~~ the reaction by-products so that the trap mechanism traps the ~~solidified~~ condensed reaction by-products.

Claim ³~~35~~ (Currently amended): The ~~impurity gas~~ impurity gas removing method according to claim ²~~34~~, wherein said reaction gas is the same as a gas contained the process gas.

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Claim ⁴~~36~~ (Currently amended): The ~~impurity gas~~ impurity gas removing method according to claim ²~~34~~, wherein a supply amount of said reaction gas mixed with the impurity gas is at least twice that of the impurity gas.

Claim ⁵~~37~~ (Currently amended): The ~~impurity gas~~ impurity gas removing method according to claim ²~~34~~, wherein said process gas includes TiCl_4 , and said reaction gas includes NH_3 .

Claim ⁶~~38~~ (Currently amended): The ~~impurity gas~~ impurity gas removing method according to claim ²~~34~~, wherein said process gas includes WF_6 [WF_5], and said reaction gas includes NH_3 .

Claim ⁷~~39~~ (Currently amended): A method for removing impurity gas discharged from a process apparatus used for processing objects by using a ~~trap mechanism~~ process gas, comprising:

evacuating ~~insides~~ an interior of the process apparatus and trap mechanism;
condensing ~~and solidifying~~ the impurity gas so that the ~~solidified gas is~~ condensed
impurities are trapped in the trap mechanism; and
causing contacting an oxidative gas ~~to contact with~~ the ~~impurity gas~~ condensed
impurities trapped in the trap mechanism to oxidize the condensed impurities ~~impurity gas~~,
thereby ~~stabilizing the impurity gas trap mechanism to oxidize the impurity gas~~, thereby
stabilizing the ~~impurity gas~~ condensed impurities.

Claim ⁸~~40~~ (Currently amended): The ~~impurity gas~~ impurity gas removing method according to claim ⁷~~39~~, when said oxidative gas is made to contact said ~~reaction by-product~~ condensed impurities in said trap mechanism, said process apparatus is evacuated with an inverse diffusion coefficient by an exhaust bypass pipe by a pump provided to bypass said trap mechanism, the inverse diffusion coefficient being set so that the ~~oxidation~~ oxidative gas is prevented from being introduced into the process apparatus through the exhaust bypass pipe.

Claim ⁹~~41~~ (Currently amended): The ~~impurity gas~~ impurity gas removing method according to claim ⁷~~39~~, wherein ~~stabilizing of said reaction byproduct sequentially and repeatedly is performed by trapping~~ said oxidative gas is contacted at a pressure higher than that needed at a time of evacuating said trap mechanism and the contacting and evacuating of the oxidative gas is repeated a plurality of times ~~then exhausting said trapped oxidative gas~~ plural times.

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Claim ~~42~~ (Currently amended): The ~~impurity gas~~ impurity gas removing method according to claim ~~39~~⁷, wherein said reaction by-product is a product produced as a cleaning gas reacts with a by-product of a film deposition gas.

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Claim ~~43~~ (Currently amended): The ~~impurity gas~~ impurity gas removing method according to claim ~~39~~⁷, wherein said process gas is one of a titanium-containing gas, tungsten-containing gas, tantalum-containing gas and silicon-containing gas.

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Claim ~~44~~ (Currently amended): The ~~impurity gas~~ impurity gas removing method according to claim ~~39~~⁷, wherein said oxidative gas ~~is at least one of~~ comprises an oxygen-containing gas.

Claim 45 (New) A method of removing an impurity gas contained in an exhaust gas to be discharged from a process apparatus comprising:

mixing a reaction gas to react with said impurity gas in said exhaust gas, to cause a reaction by-product;

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trapping said reaction by-product using a trap mechanism to condense out of the exhaust gas.

Claim 46 (New): The impurity gas removing method according to claim 45, wherein the trap mechanism is controlled in temperature to condense the reaction by-product.

Claim 47 (New): The impurity gas removing method according to claim 45, wherein a supply amount of said reaction gas mixed with the impurity gas is at least twice that of the impurity gas.

102 Claim 48 (New): The impurity gas removing method according to claim 45, wherein said process gas includes TiCl_4 , and said reaction gas includes NH_3 .

Claim 49 (New): The impurity gas removing method according to claim 45, wherein said process gas includes WF_6 , and said reaction gas includes NH_3 .
